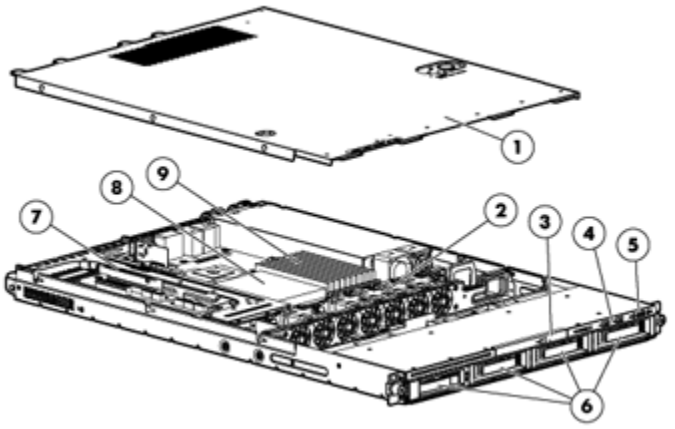
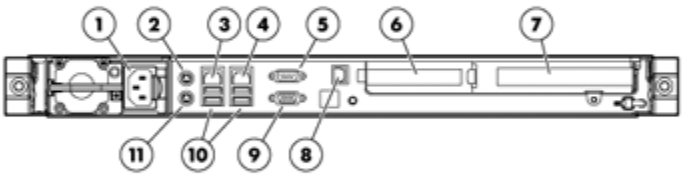
Overview





Front View:

1. Cover
2. on Hot Plug Dual Rotor Fans
3. Optional Slim 9.5mm DVD ROM
4. USB connectors (2)
5. Power Button, UID button, and Front LED Indicators
6. Support for up to four SATA or SAS Hard Drives
7. Two PCI-Express Slots (2 PCI-Express 2.0 x16 connectors standard)
8. Processor Socket (Intel Xeon, Core 2 and Quad Core)
9. Nine DDR3 Memory Slots

Rear View:

1. Power supply
2. Mouse connector
3. NIC 1 Port/Shared iLO 2 Management Port
4. NIC 2 Port
5. Serial connector
6. PCI Express expansion slot 5, low-profile, half-length
7. PCI Express expansion slot 4, (optional PCI-X, full-length)
8. Dedicated Integrated Lights-Out 2 (ProLiant Onboard Administrator powered by integrated Lights-Out 2) management port (optional)
9. Video connector
10. USB connectors (4)
11. Keyboard connector

What's New

- Adding Intel Xeon, W3540, W3520 processors

At a Glance

The HP ProLiant DL320 G6 Server is an enterprise rack-optimized server at an entry level price. The highly manageable 1 processor, 1U server is ideal for single-application IT infrastructure, web and edge-of-network applications.

The remote console and virtual KVM offered by the embedded ProLiant Onboard Administrator powered by Integrated Lights-Out 2, coupled with the management features of SIM and deployment capabilities of SmartStart and other ProLiant Essentials software, give the DL320 G6 enterprise-class management features. Support for 1 or 2 low-cost Serial ATA drives on an integrated RAID0/1 controller, with an optional upgrade to highly reliable hot plug SAS hard drives, gives the DL320 G6 flexibility to meet the needs of your datacenter. Plus, you get the cost-effective solution of a single-processor platform with options from the new Intel® Xeon® Processor 3000 sequence with turbo mode.

Overview

- Processor:
  - 1 Quad-Core or Dual-Core Intel Xeon processor 5500 series
  - Intel 5500 Chipset with up to 6.4GT/s QPI
- Memory:
  - Nine (9) DIMM slots
  - Up to 72GB, using DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 3 DIMMs per Channel in 9 Slots
- Storage Controller:
  - Entry & High Efficiency Models: HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
    NOTE: Transfer rate: 1.5Gb/s SATA
  - Performance Models: HP Smart Array P410/256MB Controller (RAID 0/1/1+0/5/5+0)
    NOTE: Available upgrades: Battery Kit upgrade (for BBWC), 512MB with BBWC, and Smart Array Advanced Pack (SAAP)
- Internal Drive Support:
  - Standard four 3.5" (Large Form Factor) hot-plug SATA or SAS hard drives
  - Internal storage capacity of up to 4TB (4 x 1TB SATA/SAS hard drives)
  - SAS drives require optional SAS Host Bus Adapter (HBA) or Smart Array Controller
  - Optional DVD or DVD-RW drive
- Network Controller:
  - Embedded NC326i Dual Port Gigabit Server Adapter
- Expansion Slots:
  - Two total slots:
    - (1) Full length PCI Express x16 slot (x16 connector)
  - Can be replaced with a full-length 64-bit /133MHz PCI-X slot
    - (1) Half-length, low-profile PCI Express x1 slot (x4 connector)
- USB 2.0 Ports:
  - Up to 7 Total: (2) front; (1) internal (optional); (4) rear accessible ports
  - Internal USB port (optional) for flexible storage, security, or USB drive key deployment
- Redundancy:
  - Hot plug power with optional redundancy (Included in Performance models)
- Infrastructure Management:
  - Convenient slide-out Systems Insight Display for quick and easy front view server diagnostics, along with status LEDs, Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU)
  - HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration.
  - HP Insight Control (ICE) suites, as product options, deliver essential infrastructure management that can help save time and money by making it easy to deploy, monitor, control and optimize your IT infrastructure through a single, simple management console. ICE suites support both Windows and Linux-based servers and management consoles
  - HP Insight Dynamics - VSE suite for ProLiant servers, a product option, is an integrated command center that enables you to continuously analyze and optimize your adaptive infrastructure. This advanced infrastructure management software lets you reduce the cost of common data center tasks by as much as 40 percent while keeping pace with your changing business.
- Operating Systems and Virtualization Software Support for ProLiant Servers:
  - Supports Windows, RHEL, SLES, OEL
- Deployment/Serviceability:
  - Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for greater flexibility in performing defective parts replacement
  - Fixed, mounting rails included with all models
- Form Factor:
  - 1U (1.70" / 4.32 cm) Rack Mount Chassis
  - 27.56" (70.00 cm) Deep
- Warranty:

Overview

- This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners. Hardware diagnostic support and parts repair is available for three years Next Business Day, with three year on-site support from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Expanded support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one-year warranty.
  NOTE: Server Warranty includes three year parts, three year labor, and three year on-site support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at:
  http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	Quad-Core Processors Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800) Intel® Xeon® Processor W3520 (2.63GHz, 8MB L3 Cache, 130W, DDR3-1066, HT, Turbo 1/1/1/2) Intel® Xeon® Processor W3540 (2.93GHz, 8MB L3 Cache, 130W, DDR3-1066, HT, Turbo 1/1/1/2) Dual-Core Processors Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800) NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology. NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. ; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.
Cache Memory One of the following depending on Model	4MB (1 x 4MB) Level 3 Cache
Chipset	Intel 5500 Chipset NOTE: For more information regarding Intel chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.
Memory Protection	Advanced ECC Mirroring mode Lock-step mode NOTE: Xeon W3500 processor family does not support any of above advanced features.

Standard Features

Memory One of the following depending on Model	Type	DDR3 1067/1333 Registered (RDIMM) and Unbuffered (UDIMM)
	Standard (Entry Models)	4 GB (2 x 2 GB) RDIMM
	Standard (High Efficiency Models)	4 GB (2 x 2 GB) UDIMM
	Maximum Memory	Up to 72 GB, using DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 3 DIMMs per Channel in 9 Slots. Up to 24 GB, using DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 6 slots.
Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter	

Expansion Slots

Expansion Slots #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
5 (Standard)	PCIe	x4	x16	10	Low profile (half length, half height) slot	
4 (Standard)	PCIe	x16	x16	21	Full length, full height slot	This PCIe slot can be replaced with optional PCI-X slot below
4 (Optional)	PCI-X (133MHz, 3.3Volt)	64-bit	Not applicable	24	Full length, full height slot	

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number
** Indicates the number of physical electrical lanes running to the connector.

Storage Controllers	Entry Models	Integrated Intel® 82801IR Serial ATA Host Controller with RAID 0/1 support. NOTE: Hot Plug SAS and SATA controllers available via PCI card option.
	High Efficiency Models	Integrated Intel® 82801IR Serial ATA Host Controller with RAID 0/1 support. NOTE: Hot Plug SAS and SATA controllers available via PCI card option.
Storage	Optical Drive	Optional: 9.5mm DVD-ROM, or DVD RW drive
	Hard Drives	None ship standard

Maximum Internal Storage	SATA (4HDD models - requires optional 4HDD cage)	4TB	4 x 1TB
Type	SAS (4HDD models - requires optional PCI controller)	4TB	4 x 1TB

Standard Features

Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Keyboard	1
	VGA	2 (rear)
	Network RJ-45	2
	USB 2.0	7 (2 front, 1 internal (optional), 4 rear) NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html
Graphics	Integrated ATI ES1000, 32 MB video standard • 16 bit color: maximum resolution of 1600 x 1200 • 32 bit color: maximum resolution of 1280 x 1024 NOTE: Maximum resolution available via iLO 2 remote console is 1280 x 1024.	
Form Factor	Rack (1U), (1.70 in/4.32 cm), 26.85" deep	
Core Infrastructure Management	HP Foundation Pack	Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters. HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecyle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation. The foundation pack includes: • HP SmartStart • HP Management • HP ProLiant Firmware Maintenance SmartStart version supported (minimum): SmartStart 8.20 http://www.hp.com/servers/smartstart
	ProLiant Onboard Administrator	HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and the Insight Dynamics-VSE suite helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. See www.hp.com/go/onboardadministrator
	HP Insight Control (ICE) suites	HP Insight Control (ICE) suites, as product options, deliver essential infrastructure management that can help save time and money by making it easy to deploy, monitor, remote control, and optimize your IT infrastructure

	through a single, simple management console. ICE suites install and license software modules that are integrated into HP System Insight Manager. Two Insight Control suites are available, to serve environments requiring either Linux-based or Windows-based management consoles: HP Insight Control suite for Linux (ICE-LX), and HP Insight Control suite (ICE). See www.hp.com/go/insightcontrol HP Insight Control suites include one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
HP Insight Dynamics - VSE suite	The HP Insight Dynamics - VSE suite for ProLiant, a product option, is an integrated command center that enables you to continuously analyze and optimize your adaptive infrastructure. This advanced infrastructure management software that allows you to analyze and optimize your adaptive infrastructure to manage physical and virtual resources in the same way. HP Insight Dynamics - VSE gives you a powerful toolkit to accelerate complex technology projects and simplify daily operations. It enables you to plan capacity and power continuously, balance across physical and virtual resources, ensure cost-effective high availability, and provision infrastructure consistently. HP Insight Orchestration, an optional extension to Insight Dynamics - VSE, enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. HP Insight Recovery, also an optional extension for Insight Dynamics - VSE, enables cost-effective disaster recovery for physical and virtual environments. Application environments can be reactivated in minutes with the touch of a button to a remote location NOTE: For more information, visit: http://www.hp.com/go/insightdynamics, http://www.hp.com/go/insightorchestration, http://www.hp.com/go/insightrecovery

Industry Standard Compliance	ACPI 2.0 Compliant PCI 3.0 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 2.0 Support IPMI 2.0

Standard Features

Intelligent Manageability	Automatic Server Recovery (ASR) iLO 2 Advanced Pack (optional) HP Systems Insight Manager Integrated Management Log Drive Parameter Tracking (with Smart Array Controllers) Dynamic Sector Repairing (with Smart Array Controllers) Pre-Failure Warranty (covers processors, SAS hard drives, and memory) BIOS Serial Console Front and Rear Unit ID (UID) button/LED
Security	Power-on password USB Port control Removable optical drive assembly (optional) Removable DVD-ROM Drive Assembly (optional) Dedicated iLO2 port (optional) Serial interface control Administrator's password
Security - Trusted Platform Module	Trusted Platform Module option kit The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: www.hp.com/go/TPM NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment. NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.

Server Power Cords		
	North America	One 6' Highline (IEC-IEC) power cord ships standard
	Japan	One 6' Highline (IEC) power cord and one 6' Lowline power cord ship standard
	ROW	One 6' Highline (IEC) power cord ships standard

NOTE: HP ProLiant DL320 G6 servers ship standard worldwide with a C13 to C14 2M Highline jumper cord. Japanese models also include a 2M Lowline power cord. If customers require a local power cord, the can check the power cord matrix for the appropriate country specific cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix

Power Supply		
	Entry Models	400Watts, non-redundant, 72% Efficiency
	High Efficiency Models	500Watts, non-redundant, 92% efficient

Standard Features

Common Slot ProLiant	• 460Watts, Common Slot, non-redundant, 92% Efficiency • NOTE: This power supply is needed to support power capping and power monitoring HP's ProLiant Common Slot Power 460W supply meets multiple Energy Efficiency Initiatives. Climate Savers Computing Initiative GOLD, ECOS Consulting 80PLUS GOLD and plans on offering models that meet the Energy Star for Server requirements when they are published.
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.
System Fans	5 dual rotor fans ship standard
Ultra Thin Rack Deployment Overview	For the Ultra Thin Rack Deployment Overview, including best practices for the HP ProLiant DL320 G6, please see the following URL: www.hp.com/servers/proliantdl320-g6.
Required Cabling	For required cabling information, refer to the Web site at: www.hp.com/servers/proliantdl320-g6.
Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Microsoft Windows Server Hyper V Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) Oracle Enterprise Linux (OEL) NOTE: Support differences will exist between the SATA and SAS configurations. NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: www.hp.com/go/ossupport and our driver download site www.hp.com/support/DL320G6.
Rack Airflow Requirements	Rack 10000 G2 series Cabinets The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: • Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 5,350 sq cm (830 square inches) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). • Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 inches) CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage. NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server, or to the server documentation located in the Support section at the following

Standard Features

URL: www.hp.com/servers/proliantdl320-g5p.

Rack Kit	Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.
Telco Rack Support	Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions at: http://www.racksolutions.com/hp/
HP Factory Express Capabilities	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.
HP Enterprise Configurator	The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator.
Service and Support	HP Care Pack Services provide total care and support expertise with committed response times designed to meet your IT and business needs. HP Care Pack services include coverage for the HP branded hardware options qualified for the server that are purchased at the same time or afterward and internal to the enclosure. It also includes the 22-inch and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack. To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of support solutions provides a range of support services designed to meet the varying needs of your business. Whether an SMB, or large global corporation, HP has ProLiant server support offers to help you speedily deploy and maximize system uptime. Recommended Service - simplify ProLiant solution implementation, maintenance, and management. • Support - 3 Year 9x5 Next Business Day coverage, excluding HP holidays only • Deployment Service - HW Installation only

Standard Features

Enhanced Service - optimize service level to increase IT performance and availability.

- Support - 3 Year 13x5 Same Business Day, 4-Hour response coverage only
- Deployment Service - Installation and Start up only

Refer to the information on the Installation of a ProLiant on the ProLiant Data Sheet; to be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

NOTE: For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

HP DL320 G6 Entry Models	Processors	Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80 Watts, DDR3-800)
HP DL320G6 E5502 505682-xx1	Cache Memory	4MB L3 Cache
	Memory	4 GB (2 x 2 GB) DDR3 RDIMM
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drives	None ship standard
	Internal Storage	Up to 4 x 1TB 3.5" Hot plug SATA/SAS, Maximum NOTE: SAS requires optional PCI Controller.
	Optical Drive	Optional
	Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)

HP DL320 G6 High Efficiency Models	Processors	Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800)
HP DL320G6 L5506 505683-xx1	Cache Memory	4MB L3 Cache
	Memory	4 GB (2 x 2 GB) DDR3 UDIMM
	Network Controller	Embedded NC326i Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drives	None ship standard
	Internal Storage	Up to 4 x 1TB 3.5" Hot plug SATA/SAS, Maximum NOTE: SAS requires optional PCI Controller.
	Optical Drive	Optional
	Power Supply	500-Watt PFC Power Supply, CE Mark Compliant
	Fans	5 dual rotor fans ship standard
	Form Factor	Rack (1U), (1.70 in/4.32 cm)

Country Code Key	xx=00	U.S.
	xx=20	Brazil
	xx=29	Japan
	xx=37	APD
	xx=42	Euro
	xx=AA	PRC

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.
NOTE: FIO indicates that this option only available as a Factory Installable Option.

Step 1: Base Configuration (choose one of the following configurable models)

Models	DL320G6 CTO (Configure to Order) Chassis	505768-B21
	Includes:	
	Embedded NC326i Dual Port Gigabit Server Adapter	
	1 full length PCI Express x16 slot and 1 half length low profile PCI Express x4 slot	
	Integrated Lights-Out 2 (ProLiant Onboard Administrator powered by Integrated	
	Lights-Out 2) embedded (shared NIC functionality standard)	
	HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)	
	Rack (1U) form factor, (1.70 in/4.32 cm)	
	Fixed, mounting rails	

Step 2: Choose Required Options (only one of the following from each list unless othe noted)

Processors	Quad-Core Processors	
	Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO	512058-L21
	Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO	512059-L21
	Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800), FIO	512063-L21
	Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO	512060-L21
	Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2), FIO	512064-L21
	Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2), FIO	512062-L21
	Intel® Xeon® Processor W3520 (2.63GHz, 8MB L3 Cache, 130W, DDR3-1066, HT, Turbo 1/1/1/2), FIO	519748-L21
	Intel® Xeon® Processor W3540 (2.93GHz, 8MB L3 Cache, 130W, DDR3-1066, HT, Turbo 1/1/1/2), FIO	519749-L21
	Dual-Core Processors	
	Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800), FIO	512057-L21
Drive Cage	HP 8SFF HDD Cage & Bkpln G6 FIO NOTE: This cage requires the P410 SAS array controller as a Primary Controller (See Step 3 below if P/N 515938-B21 is selected).	515938-B21
Power Supply	DL320G6 400W Power Supply FIO Kit	515739-B21
	DL320G6 460W PL Power Supply FIO Kit	515740-B21
	DL320G6 500W NHP Power Supply FIO Kit	537150-B21
Memory	Registered Dimms (RDIMMs)	
	HP 2GB 2Rx8 PC3-10600R-9	500656-B21

	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	NOTE: Depending on the memory configuration and processor model the memory speed may run at 1066MHz or 800MHz. See the Online Memory Configuration Tool for details: http://www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.	

Step 3: Choose Additional Factory Integratable Options (only one of the following fror list unless otherwise noted)

SAS HBAs	HP SC08Ge Host Bus Adapter NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.	488765-B21
	HP SC11Xe Host Bus Adapter NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.	412911-B21
	NOTE: Any factory integrated SAS HBA purchase automatically includes the HP HBA SAS-SATA 4x 1 LN Cable Kit (452130-B21)	
Controllers	HP Smart Array P212/256 MB w/ Battery FIO	491191-B21
	HP Smart Array P212/256MB Controller	462834-B21
	HP Smart Array P212/Zero Memory (ZM) Controller	462828-B21
	HP Smart Array P410/Zero Memory FIO Controller NOTE: May be selected if P/N 515938-B21 selected in Step 2 above.	462860-B21
	HP Smart Array P410/256MB Controller NOTE: May be selected if P/N 515938-B21 selected in Step 2 above.	462862-B21
	HP Smart Array P410/256 MB w/Battery FIO NOTE: May be selected if P/N 515938-B21 selected in Step 2 above.	491195-B21
	HP Smart Array P410/512MB with BBWC NOTE: May be selected if P/N 515938-B21 selected in Step 2 above.	462864-B21
	HP Smart Array P411/256MB Controller	462830-B21
	HP Smart Array P411/256 MB w/ Battery FIO	491193-B21
	HP Smart Array P411/512MB BBWC	462832-B21
	NOTE: Any factory integrated Smart Array Controller purchase automatically includes the HP HBA SAS-SATA 4x1LN Cable Kit (452130-B21).	

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" section below.

Core Options

NOTE: Some options may not be factory integratable. Contact your local sales representative for additional information.

Memory	Registered Dimms (RDIMMs)	
	HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.	
Optical Drives	HP 9.5mm SATA DVD-ROM Optical Drive	481045-B21
	HP 9.5mm SATA DVD RW Optical Drive	481047-B21
Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	
	SAS Hot Plug SFF Enterprise (ENT) Drives	
	HP 300GB 6G SAS 10K SFF DP ENT HDD	507127-B21
	HP 300GB 3G SAS 10K SFF DP ENT HDD	492620-B21
	HP 146GB 6G SAS 15K SFF DP ENT HDD	512547-B21
	HP 146GB 3G SAS 15K SFF DP ENT HDD	504062-B21
	HP 146GB 6G SAS 10K SFF DP ENT HDD	507125-B21
	HP 146GB 3G SAS 10K SFF DP ENT HDD	418367-B21
	HP 72GB 6G SAS 15K SFF DP ENT HDD	512545-B21
	HP 72GB 3G SAS 15K SFF DP ENT HDD	418371-B21
	HP 72GB 3G SAS 10K SFF DP ENT HDD	384842-B21
	HP 36GB 3G SAS 15K SFF DP ENT HDD	418369-B21
	SAS Hot Plug 3.5" Enterprise (ENT) Drives	
	HP 450GB 3G SAS 15K 3.5" DP ENT HDD	454232-B21
	HP 400GB 3G SAS 10K 3.5" DP ENT HDD	459508-B21
	HP 300GB 3G SAS 15K 3.5" DP ENT HDD	416127-B21
	HP 146GB 3G SAS 15K 3.5" DP ENT HDD	384854-B21
	HP 72GB 3G SAS 15K 3.5" DP ENT HDD	384852-B21
	SAS Hot Plug SFF Midline (MDL) Drives	
	500GB 6G SAS 7.2K 2.5in DP MDL HDD	507610-B21
	SAS Hot Plug 3.5" Midline (MDL) Drives	

Core Options

	HP 1TB 3G SAS 7.2K 3.5" DP MDL HDD	461137-B21
	HP 750GB 3G SAS 7.2K 3.5" DP MDL HDD	461135-B21
	NOTE: SAS Hard Drives are only supported with optional SAS HBA or RAID cards. NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
	SATA Hot Plug SFF Midline (MDL) Drives	
	HP 500GB 3G SATA 7.2K 2.5in MDL HDD	507750-B21
	HP 160GB 3G SATA 7.2K 2.5in MDL HDD	530888-B21
	SATA Hot Plug 3.5" Midline (MDL) Drives	
	HP 1TB 3G SATA 7.2K 3.5" MDL HDD	454146-B21
	HP 750GB 3G SATA 7.2K 3.5" MDL HDD	458930-B21
	HP 500GB 3G SATA 7.2K 3.5" MDL HDD	458928-B21
	HP 250GB 3G SATA 7.2K 3.5" MDL HDD	458926-B21
	SATA Hot Plug 3.5" Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K 3.5" ETY HDD	458945-B21
	SATA Hot Plug SFF Entry (ETY) Drives	
	HP 250GB 3G SATA 5.4K SFF ETY HDD	460355-B21
	HP 120GB 1.5G SATA 5.4K SFF ETY HDD	458924-B21
	NOTE: SATA hard drives have a 1-year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	

Communications	HP NC112T PCIe Gigabit Server Adapter	503746-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
	NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each NC522SFP adapter. NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately. NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs.	

Additional Options

HP Insight Control (ICE) suites	HP Insight Control suite (ICE)	
	HP Insight Control suite, No Media 1-Server License including 1 year of 24x7 Technical Support and Updates NOTE: This part number can be purchased as a single license or as multiple licenses with a single activation key. Customer will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. Only available directly from HP and select resellers in the Americas region.	452148-B22
	HP Insight Control Management Software Media Kit NOTE: Insight Software DVD media without licenses. Contains HP Systems Insight Manager and Insight software products and components licensed by the Insight Control suite. Uses an integrated installer to perform quick and accurate software installation and updates. NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	436222-B21
	HP Insight Control suite for Linux (ICE-LX)	
	HP Insight Control Environment for Linux, Media pack (DVD) - No licenses included NOTE: This optional Media pack DVD contains the ISO image for HP Insight Control suite for Linux, HP System Insight Manager, HP Insight Power Manager, HP Insight Virtual Machine Manager, and an integrated installer. Servers must be acquired separately. NOTE: This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from: http://www.hp.com/go/ice-linux (click on Download button).	464422-B22
	HP Insight Control Environment for Linux, No Media, 1-Server license, including one year of 24x7 Technical Support and Updates NOTE: This part number can be used to purchase one (1) license with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: One certificate is shipped for each license. NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html	464423-B22
Port Options	HP DL320G6 iLO2 PORT OPT KIT	514206-B21
Security	HP Trusted Platform Module Option Kit	488069-B21

Additional Options

Storage Controllers	SAS Controllers	
	Smart Array P212 Controller	
	HP Smart Array P212/Zero Memory Controller	462828-B21
	HP Smart Array P212/256 MB Controller	462834-B21
	Smart Array P410 Controller	
	HP Smart Array P410/256 MB Controller	462862-B21
	HP Smart Array P410/512 MB with BBWC Controller	462864-B21
	NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html (Smart Array P212 Controller) http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Smart Array P410 Controller)	
	Optional Upgrades	
	256 MB Cache Module NOTE: Supported on HP Smart Array P212 Controller only.	462968-B21
	512MB BBWC NOTE: Supported on HP Smart Array P410 Controller and HP Smart Array P411 Controller only.	462967-B21
	Battery Kit upgrade NOTE: To enable BBWC on the 256MB cache. NOTE: Supported on HP Smart Array P212 Controller, HP Smart Array P410 Controller, and HP Smart Array P411 Controller only.	462969-B21
	SAS HBA	
	HP SC08Ge Host Bus Adapter NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.	488765-B21
	HP HBA SAS-SATA 4x1LN Cable Kit NOTE: This option is required for any internal port HBA or controller that has a standard 4 port SAS/SATA connector. NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html (SC80Ge HBA)	452130-B21
	SCSI HBA	
	HP SC11Xe Host Bus Adapter NOTE: Please see the following QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	412911-B21

Additional Options

Tape Drives

NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html

USB Rack-Mount Tape Solutions

HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive — AG703A
NOTE: Pre-configured with one DAT 160 USB tape drive.

SAS Rack-Mount Tape Solutions
NOTE: HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.

HP StorageWorks 1U SAS Rack-Mount Kit with one LTO-4 Ultrium 1760
NOTE: Pre-configured with one LTO-4 Ultrium 1760 SAS tape drive.

HP StorageWorks 1U SAS Rack-Mount Kit — AE459A
NOTE: Supports up to (2) half-height SAS tape drives.

HP StorageWorks DAT 160 SAS Internal Tape Drive — Q1587A
NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A)

HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive — DW085A
NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A)

HP StorageWorks LTO-3 Ultrium 920 SAS Internal Tape Drive — EH847A
NOTE: Mounts inside the 1U SAS Rack-Mount Kit (AE459A)

NOTE: For an up-to-date listing of the latest O/S and software support details for HP Ultrium tape drives, please visit: http://www.hp.com/go/connect.

Disk-Based Backup

RDX Removable Disk Backup

HP StorageWorks RDX160 External Removable Disk Backup System — AJ766A
NOTE: 160GB of Disk Storage

HP StorageWorks RDX320 External Removable Disk Backup System — AJ768A
NOTE: 320GB of Disk Storage

HP StorageWorks RDX500 External Removable Disk Backup System — AJ935A
NOTE: 500GB of Disk Storage

NOTE: Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html

D2D Backup

HP StorageWorks D2D2502i Backup System — EJ001A
NOTE: 2 TB raw capacity/1.5 TB useable capacity

HP StorageWorks D2D2504i Backup System — EJ002A
NOTE: 4 TB raw capacity/3 TB useable capacity

NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://www.hp.com/go/d2d.

Additional Options

Tape Autoloaders	HP StorageWorks 1/8 G2 Tape Autoloader	
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
	HP StorageWorks 1/8 G2 LTO-3 Ultrium 920 SAS Autoloader	AH558A
	HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A
	NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions	
	NOTE: Please reference the Tape Autoloader QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution.	
Tape Libraries	HP StorageWorks MSL2024 Tape Library	
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Drive Library	AK378A
	HP StorageWorks MSL2024 1 LTO-2 Ultrium 448 SCSI Drive Library	AG116A
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Drive Library	AK380A
	HP StorageWorks MSL4048 1 LTO-3 Ultrium 920 SAS Drive Library	AH560A
	NOTE: Please reference the MSL Tape Library QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	
HP StorageWorks Modular Smart Array	MSA SAN Storage Arrays	
	HP StorageWorks 60 Modular Smart Array	418408-B21
	NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html (Worldwide)	
	HP StorageWorks 70 Modular Smart Array	418800-B21
	NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)	

Additional Options

StorageWorks Options

NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see:
http://h18006.www1.hp.com/storage/saninfrastructure/hba.html

HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA	AD167A
HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A
HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA	AE369A
HP StorageWorks 8 Gb Simple SAN Connection Kit	AK241A
HP StorageWorks 81E 8Gb SP PCI-e FC HBA	AJ762A
HP StorageWorks 82E 8Gb Dual-port PCI-e FC HBA	AJ763A
HP StorageWorks 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A
HP StorageWorks 81Q PCI-e FC HBA	AK344A
StorageWorks SCSI HBA	
HP U320e SCSI Host Bus Adapter	AH627A

NOTE: Recommended HBA for MSL SCSI Tape Library connect.

Uninterruptible Power Systems

HP Rack-mountable UPS

HP R1500 G2 UPS

HP, R1.5kVA UPS, 1U, NA	AF419A
HP, R1.5kVA UPS, 1U, INTL	AF418A
HP, R1.5kVA UPS, 1U, JPN/TW	AF421A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html

HP R3000 UPS

HP R3000 VA UPS, 2U, DTC, INTL	AF414A
HP R3000 VA UPS, 2U, Low Voltage L5-30, NA	AF422A
HP R3000 VA UPS, 2U, High Voltage L6-20, NA	AF423A
HP R3000 VA UPS, 2U, High Voltage L6-20, JPN	AF424A
HP R3000 VA UPS, 2U, Low Voltage L5-30, JPN	AF425A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/10671_div/10671_div.html

HP R3000v Uninterruptible Power System

HP R3000v UPS	AF444A

NOTE: The R3000v is available in China and India only.

NOTE: Please see UPS QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html (Worldwide)

HP Rack-Mountable R5500 UPS

HP R5500 VA UPS, INTL	AF416A
HP R5500 VA UPS, NA/JPN	AF426A

Additional Options

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/11871_div/11871_div.html (Worldwide)

NOTE: For additional information on HP Uninterruptable Power Systems please go to: www.hp.com/servers/rackups.

USB Options	USB 1.44-MB External Diskette Drive (Carbonite)	DC141B
	HP USB-P/S2 Mouse	DC369A
	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
Rack Kit	Rack Adapter Kit	332815-B21
	NOTE: This kit allows HP rack servers to fit in racks that are 24" wide.	
HP Rack Series	HP Rack 5000 Series (Graphite Metallic)	
	HP 5642 Rack-Unassembled	358254-B21
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.html (Worldwide)	
	HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	
	10642 G2 (42U) Rack Cabinet - Pallet	AF001A
	10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
	10642 G2 (42U) Rack Cabinet - Crated	AF003A
	10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
	10636 G2 (36U) Rack Cabinet - Pallet	AF011A
	10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
	10636 G2 (36U) Rack Cabinet - Crated	AF013A
	10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A
	10622 G2 (22U) Rack Cabinet - Pallet	AF021A
	10622 G2 (22U) Rack Cabinet - Shock Pallet	AF022A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
	10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
	10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
	10647 G2 (47U) Rack Cabinet - Pallet	AF031A
	HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A
	NOTE: Due to handling and shipping requirements, AF044A is only orderable through HP Factory Express. It is not for direct sales. Customer site surveys are required before an order is approved. CTO orders may require additional lead time.	
	10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels).	

Additional Options

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.

HP Rack Options

Keyboards and Monitors	
TFT7600 Rackmount Keyboard Monitor, US	AG052A
TFT7600 Rackmount Keyboard Monitor UK	AG053A
TFT7600 Rackmount Keyboard Monitor GR	AG054A
TFT7600 Rackmount Keyboard Monitor FR	AG055A
TFT7600 Rackmount Keyboard Monitor IT	AG056A
TFT7600 Rackmount Keyboard Monitor SP	AG057A
TFT7600 Rackmount Keyboard Monitor DEN	AG058A
TFT7600 Rackmount Keyboard Monitor NOR	AG059A
TFT7600 Rackmount Keyboard Monitor SE/FI	AG060A
TFT7600 Rackmount Keyboard Monitor SWI	AG061A
TFT7600 Rackmount Keyboard Monitor PORT	AG062A
TFT7600 Rackmount Keyboard Monitor BEL	AG063A
TFT7600 Rackmount Keyboard Monitor JPN2	AG064A
TFT7600 Rackmount Keyboard Monitor RUS	AG065A
TFT7600 Rackmount Keyboard Monitor INTL	AG066A
1U Rackmount Keyboard with USB, US	AG072A
1U Rackmount Keyboard with USB, UK	AG073A
1U Rackmount Keyboard with USB, GR	AG074A
1U Rackmount Keyboard with USB, FR	AG075A
1U Rackmount Keyboard with USB, ITL	AG076A
1U Rackmount Keyboard with USB, SP	AG077A
1U Rackmount Keyboard with USB, DEN	AG078A
1U Rackmount Keyboard with USB, NOR	AG079A
1U Rackmount Keyboard with USB, SE/FI	AG080A
1U Rackmount Keyboard with USB, SWI	AG081A
1U Rackmount Keyboard with USB, PORT	AG082A
1U Rackmount Keyboard with USB, BEL	AG083A
1U Rackmount Keyboard with USB, JPN2	AG084A
1U Rackmount Keyboard with USB, RUS	AG085A
1U Rackmount Keyboard with USB, INTL	AG086A
HP KVM Switch Options	
2 x 1 x 16 IP Console Switch with Virtual Media	AF601A
4 x 1 x 16 IP Console Switch with Virtual Media	AF602A
2 x 16 Server Console Switch with Virtual Media	AF600A
PS/2 Virtual Media Interface Adapter, 1 pack	AF604A

NOTE: Requires PS/2 and one USB port on server.

Additional Options

HP Server console switch 0x2x8	AF616A
HP Server console switch 0x2x16	AF617A
PS/2 Interface Adapter, 1 pack	262588-B21
PS/2 Interface Adapter, 8 pack	262587-B21
NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
HP 1 x 4 Console Switch (ALL)	AF611A
PS2 Server Console Cable, 6 ft, 2 pack	AF612A
USB Server Console Cable, 6 ft, 2 pack	AF613A
NOTE: Required for supporting USB peripherals.	
NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	
HP Serial Console Server Options	
HP 16 Port Serial Console Server (worldwide)	AF101A
HP 48 Port Serial Console Server (worldwide)	AF102A
Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	

Service and Support Offerings (HP Care Pack Services)

Hardware Services On-site Service	
Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	U4479E
4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	U4480E
4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4481E
6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4482E
Installation & Start-up Services	
Hardware Installation, Electronic	U4490E
Installation & Start-Up of a ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays, Electronic	U4491E
Support Plus	
Onsite HW support, 8am-9pm, M-F, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 8am-9pm, M-F 2hr response time excl. HP holidays, Electronic	U4492E
Support Plus 24	
Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic	U4493E
Onsite HW support 24x7, 4hr response and SuSE Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic.	U6309E

Additional Options

Onsite HW support 24x7, 4hr response and Red Hat ES Linux SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays, Electronic. NOTE: For more information, customer/resellers can contact: http://www.hp.com/hps/	U8331E

Memory

HP ProLiant DL320 G6 Models

HP ProLiant DL320 G6 Memory Population Guidelines

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

NOTE: Charts do not represent all possible memory configurations.

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:
www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below;

- For servers with nine (9) memory slots;
- There are three (3) channels per processor, per server.
- There are three (3) DIMM slots for each memory channel; nine (9) total slots.
- Memory channel 1 consists of the three (3) DIMMs that are closest to the processor.
- Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor.
- DIMM slots that are white should be populated first.
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs).
- To maximize performance, balance the total memory capacity between all installed processors.
- It is not required, but it is recommended to load the channels similarly if possible.
- You can only have up to eight (8) ranks installed per channel.
- You can only install two quad-rank DIMMs per channel.
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty.
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel.
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset.
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically.
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,4; 2,5; on a 2DPC system.
- No mixing DIMM voltage; all DIMMs must be the same voltage.

DDR3 DIMM slot/capacity/populated speed table

DIMM Type ->	Registered (RDIMMs)					Unbuffered with ECC (UDIMMs)	
DIMM Rank ->	Dual Rank (2R)				Quad Rank (4R)	Single Rank	Dual Rank (2R)
DIMM Capacity ->	2GB	4GB	8GB	8GB	4GB	1GB	2GB
DIMM Native Speed (MHz) ->	1333	1333	1066	1333	1066	1333	1333
SLOTS THAT CAN BE POPULATED							
9 slot servers	9	9	9	9	6	6	6
MAXIMUM CAPACITY (GB)							
9 slot servers	18	36	72	72	24	6	12
POPULATED DIMM SPEED (MHz)							
1 DIMM Per Channel	1333	1333	1066	1333	1066	1333	1333
2 DIMM Per Channel	1066	1066	1066	1066	800	1066	1066
3 DIMM Per Channel	800	800	800	800	*	*	*
* - not supported by HP at this time.							

NOTES:

Memory

- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities.
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor.
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, you still run at 1066MHz.
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz.
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz.
- 95 Watt CPU's are required for 1333MHz DIMM speeds. All other CPU's are capable of up to 1066MHz.
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

DIMM slot and configuration diagrams

Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

9 DIMM SLOTS		
	CPU1	
	slot #	population order
Chnl 1	1	G
	2	D
	3	A
Chnl 2	4	H
	5	E
	6	B
Chnl 3	7	I
	8	F
	9	C

Standard memory configuration

- 6GB, consisting of three (3) 2GB dual-rank PC3-10600 RDIMMs

	CPU1	
	slot #	population order
Chnl 1	1	G; empty
	2	D; empty
	3	A; 2GB DIMM
Chnl 2	4	H; empty
	5	E; empty
	6	B; 2GB DIMM
Chnl 3	7	I; empty
	8	F; empty
	9	C; 2GB DIMM

Memory

Standard memory plus optional memory

- 54GB, consisting of three (3) 2GB RDIMMs plus six (6) 8GB RDIMMs
- 3x 2GB dual-rank PC3-10600 RDIMMs
- 6x 8GB dual-rank PC3-10600 RDIMMs

	CPU1	
	slot #	population order
Chnl 1	1	G; 8GB DIMM
	2	D; 8GB DIMM
	3	A; 2GB DIMM
Chnl 2	4	H; 8GB DIMM
	5	E; 8GB DIMM
	6	B; 2GB DIMM
Chnl 3	7	I; 8GB DIMM
	8	F; 8GB DIMM
	9	C; 2GB DIMM

Standard memory replaced with optional memory

RDIMM maximum configuration

- 72GB, consisting of nine (9) 8GB dual-rank PC3-10600 RDIMMs

	CPU1	
	slot #	population order
Chnl 1	1	G; 8GB DIMM
	2	D; 8GB DIMM
	3	A; 8GB DIMM
Chnl 2	4	H; 8GB DIMM
	5	E; 8GB DIMM
	6	B; 8GB DIMM
Chnl 3	7	I; 8GB DIMM
	8	F; 8GB DIMM
	9	C; 8GB DIMM

UDIMM maximum configuration (2 UDIMMs per Channel limit)

- 12GB, consisting of six (6) 2GB dual-rank PC3-10600 UDIMMs

Memory

	CPU1	
	slot #	
Chnl 1	1	G; empty
	2	D; 2GB DIMM
	3	A; 2GB DIMM
Chnl 2	4	H; empty
	5	E; 2GB DIMM
	6	B; 2GB DIMM
Chnl 3	7	I; empty
	8	F; 2GB DIMM
	9	C; 2GB DIMM

NOTES;
Memory configurations above do not apply to "Factory Integrated Models".
Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:
www.hp.com/go/ddr3memory-configurator

Storage

1- 4 Four SATA or SAS drive bays

A Optical Drive Bay: Optional 9.5mm DVD-ROM, or DVD-ROM/CD-RW Combo drive

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
All Models: 9.5mm IDE DVD-ROM or DVD-ROM/CD-RW Combo Drive	Up to 1	A	HP embedded SATA Controller
HP Slim SATA DVD-ROM Optical Drive HP Slim SATA DVD RW Optical Drive	Up to 1	A	HP embedded SATA Controller

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

SAS Hot Plug SFF Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G 10K DP 300GB 3G 10K DP 146GB 6G 15K DP 146GB 3G 15K DP 146GB 6G 10K DP 146GB 3G 10K DP 72GB 6G 15K DP 72GB 3G 15K DP 72GB 3G 10K DP 36GB 3G 15K DP	Up to 2 Up to 4 NOTE: depending on model.	1-2 1-4 NOTE: depending on model.	HP embedded 4 Port SATA Controller with RAID 0/1 support HP SC08Ge Host Bus Adapter NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS. HP Smart Array P212/256MB Controller

SAS Hot Plug 3.5" Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller

Storage

450GB 3G SAS 15K DP	Up to 2	1-2	HP embedded 4 Port SATA Controller with RAID 0/1 support
400GB 3G SAS 10K DP	Up to 4	1-4	HP SC08Ge Host Bus Adapter
300GB 3G SAS 15K DP	NOTE:	NOTE:	NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.
146GB 3G SAS 15K DP	depending on	depending on	HP Smart Array P212/256MB Controller
72GB 3G SAS 15K DP	model.	model.	

SAS Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 7.2K SFF DP	Up to 2	1-2	HP embedded 4 Port SATA Controller with RAID 0/1 support
	Up to 4	1-4	HP SC08Ge Host Bus Adapter
	NOTE:	NOTE:	NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.
	depending on	depending on	HP Smart Array P212/256MB Controller
	model.	model.	

SAS Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB SAS 7.2K DP	Up to 2	1-2	HP embedded 4 Port SATA Controller with RAID 0/1 support
750GB SAS 7.2K DP	Up to 4	1-4	HP SC08Ge Host Bus Adapter
	NOTE:	NOTE:	NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.
	depending on	depending on	HP 8 Internal Port SAS HBA with RAID
	model.	model.	NOTE: Transfer rate: 1.5 Gb/s SATA, 3 Gb/s SAS.
			HP Smart Array P212/256MB Controller

SATA Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G SATA 7.2K	Up to 2	1-2	HP Smart Array P212/256MB Controller
750GB 3G SATA 7.2K	Up to 4	1-4	
500GB 3G SATA 7.2K	NOTE:	NOTE:	
250GB 3G SATA 7.2K	depending on	depending on	
	model.	model.	

SATA Hot Plug SFF Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 5.4K	Up to 4	1-4	HP Smart Array P212/256MB Controller
120GB 1.5G SATA 5.4K			

SATA Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller

Storage

500GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 2 Up to 4 NOTE: depending on model.	1-2 1-4 NOTE: depending on model.	HP Smart Array P212/256MB Controller

SATA Hot Plug 3.5" Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
160GB 3G SATA 7.2K	Up to 4	1-4	HP Smart Array P212/256MB Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
60 Modular Smart Array	Up to 8	External	HP Smart Array P411/512 BBWC Controller HP Smart Array P212/256MB Controller
70 Modular Smart Array	Up to 4	External	HP Smart Array P411/512 BBWC Controller HP Smart Array P212/256MB Controller
HP 2000sa Modular Smart Array Controller	Up to 4	External	HP SC08Ge Host Bus Adapter

Maximum Storage Capacity – (SAS drives)

Internal	600GB (2 x 300GB SAS)
External	4.20TB (1 x (14 x 300GB SAS))
Total	4.80TB

NOTE: In order to implement integrated SATA RAID with Smart Start 7.90 on Windows 2000/2003, the use of a floppy drive is necessary.

Maximum Storage Capacity – (SATA Drives)

Internal	4TB (4 x 1TB SATA)
External	12TB (1 x (12 x 1TB SATA))
Total	16TB

Tape and Disk-Based Backup

NOTE: For a complete listing of compatible tape and disk-based backup offerings, please visit: www.hp.com/go/connect

	Position Supported	Controller	Controller Part Number
HP StorageWorks SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO-4 Ultrium 1760	External	HP SC11Xe Host Bus Adapter	412911-B21

Storage

LTO-4 Ultrium 1840
DAT 40
DAT 72
DAT 160
1U Rack-Mount Kit
3U Rack-Mount Kit

HP StorageWorks USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC44Ge Host Bus Adapter	416096-B21
HP StorageWorks SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 G2 Tape Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	HP SC11Xe Host Bus Adapter	412911-B21
		HP U320e SCSI Host Bus Adapter NOTE: Recommended for MSL tape libraries.	AH627A
HP StorageWorks SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048	External	HP SC44Ge Host Bus Adapter	416096-B21
HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information.	N/A
HP StorageWorks RDX Removable Disk Backup System	External	USB 2.0 Port	N/A

Storage

RDX160
RDX320
RDX500

HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2500i D2D4000i	External	Embedded Network Controller	N/A

Power Specifications

HP 460W Power Supply
Part Number - AC 460W PSU 503296-B21 Option Kit

Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage	460	460	460	460	460	460	460
Nominal Input Current (A rms)	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Max Rated Input Wattage Rating (Watts)	526	520	505	505	503	503	503
Max. Rated VA (Volt-Amp)	548	542	527	527	524	524	524
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	1794	1773	1725	1725	1715	1715	1715

System Unit	Dimensions (H x W x D) (with bezel)	1.70 x 17.64 x 26.85 in (4.32 x 44.80 x 68.19 cm)	
	Weight (approximate)	Maximum (four hard drives, power supply, and processor installed)	29.95 lb (13.6kg)
		Minimum (one hard drive, power supply, and processor installed)	25.52lb (11.6kg)
	Input Requirements (per power supply)	Range Line Voltage	90 - 132 VAC, 180 - 264 VAC
		Rated Input Current	6 A (at 100 VAC), 3 A (at 200 VAC)
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	486 W (at 100 VAC), 479 W (at 200 VAC)
	BTU Rating	Maximum	1836 BTU/hr (at 100 VAC), 1706 BTU/hr (at 200 VAC)
	Power Specifications	NOTE: To review typical system power ratings use the HP Power Advisor which is available online located at url: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: DL320 G6 - Follow the instructions of the next screens.	
	Power Supply Output (per power supply)	Rated Steady-State Power	400 W (at 100 VAC), 400 W (at 200 VAC)
		Maximum Peak Power	400 W (at 100 VAC), 400 W (at 200 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed.

			Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
		Idle	
		LWAd	6.25 B
		LpAm	51.4dBA
		Operating	
		LWAd	6.25 B
		LpAm	51.4 dBA
	Emissions Classification (EMC)	FCC Rating	Class A
		Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
		NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	
Power Supply	Input voltage specifications	Rated input voltage	100 VAC to 240 VAC
	Input Specifications	Rated input line	90 VAC to 264VAC
		Frequency range	47 to 63 Hz
		Rated input power	@ 115V input, Rated input power = 486W (assume output wattage=450W @ 230V input, Rated input power = 479W (assume output wattage=450W)
		Rated input current	6 A, 3 A (110 V, 220 V)
		Steady state power	420W (rated)
	BTU Rating	1710 BTU/hr	
	Ambient temperature range	Operating	50° to 118° F (10° to 48° C)
		Non-operating	-40° to 158° F (-40° to 70° C)
	Relative humidity (non-condensing)	Operating	55% to 85%
		Non-operating	5% to 95%
	Dielectric voltage withstand	Input to output	1800 VAC/minute
		Input to ground	1800 VAC/minute
	Maximum Wet Bulb Temperature	106.3° F (41.3° C)	

Technical Specifications

Integrated Serial ATA Controller	Simultaneous drive transfer channels	4 channels
	Transfer rate synchronous (maximum theoretical)	150 MB/s per channel
	Data transfer method	Intel® 82801IR Integrated Serial ATA Host Controller (non-RAID mode) Intel® 82801IR Integrated Serial ATA Host Controller (RAID Mode)
	Drive support	Serial ATA
	Data transfer modes	Legacy Mode Combined Mode
	Protocol	Serial ATA
	Feature	NCQ (Native Command Queuing); AHCI (Advanced Host Controller Interface)
	RAID levels supported	0, 1
	RAID Features	Supports multiple logical volumes Setup through ROM based Array Configuration Utility Installation scripting support NOTE: This controller does not support Hot Plug functions or LED functions.
	RAID OS Support	Microsoft Windows Server 2003 NOTE: In order to implement integrated SATA RAID with Smart Start 7.90 on Windows 2000/2003, the use of a floppy drive is necessary. Linux (Red Hat, SuSE, UnitedLinux)

Embedded NC326i Dual Port Gigabit Server Adapter	Network Interface	10Base-T/ 100Base-TX/ 1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T IEEE 802.3ab 1000Base-T IEEE 802.3u 100Base-TX	
	Data Transfer Method	Four lane (x4), 100MHz PCI Express Reference Clock	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000 Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

© Copyright 2009 Hewlett-Packard Development Company, L.P.

The information contained herein is subject to change without notice.

Microsoft and Windows NT are US registered trademarks of Microsoft Corporation.

Intel, the Intel logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries.

The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein.

For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.